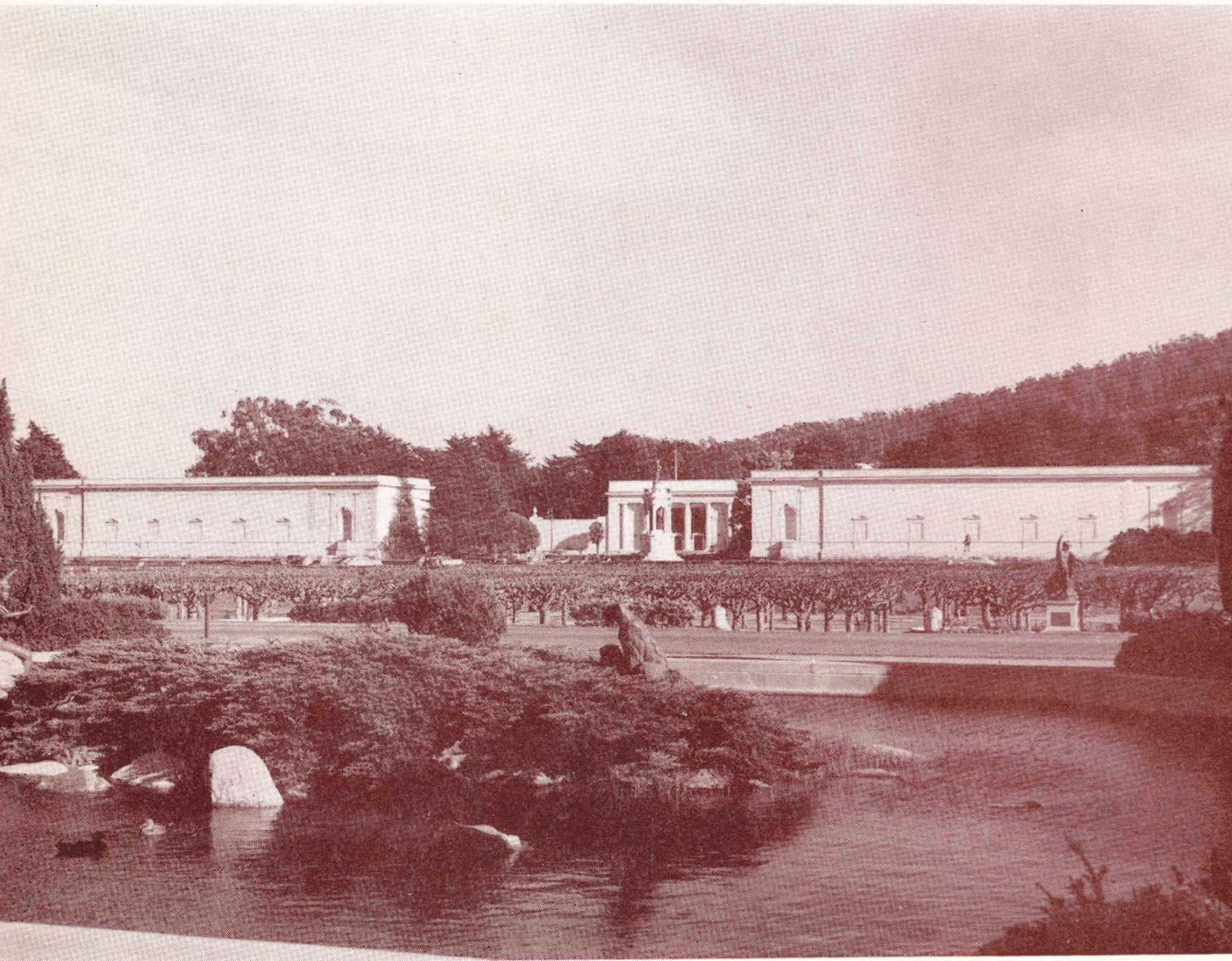


CALIFORNIA ACADEMY OF SCIENCES



Annual Report for the Year 1947

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PUBLICATIONS OF THE ACADEMY

(Sent without cost to members)

- No. 1. Academy News Letter (issued monthly).
No. 2. "Early Botanical Explorers on the Pacific Coast," by *Alice Eastwood*.
No. 3. "California's First Great Scientist," by *Chauncey D. Leake*.
No. 4. "The Giant Goose Lake Meteorite," by *Earle G. Linsley*.
No. 5. Research Publications as Issued.

CALIFORNIA ACADEMY OF SCIENCES
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BRAYTON WILBUR

THE PRESIDENT OF THE ACADEMY, *ex-officio*

THE TREASURER OF THE ACADEMY, *ex-officio*

H. S. ANDERSON, *Secretary to the Board*

At the annual election held on February 19, 1947, the following officers were elected and served during the year:

M. E. LOMBARDI, *President*

PROFESSOR E. B. BABCOCK, *First Vice-President*

DR. GEORGE S. MYERS, *Second Vice-President*

DR. CHARLES L. CAMP, *Corresponding Secretary*

W. I. FOLLETT, *Recording Secretary*

FRANCIS P. FARQUHAR, *Treasurer*

The COUNCIL of the Academy consists of the above-mentioned officers with the addition of the Director, Dr. Robert C. Miller, and the Librarian, Dr. Charles H. Danforth.

PRESIDENT'S ANNUAL REPORT FOR 1947

Your President, in presenting his annual report, would like to bring to your attention the encouraging progress made during the year in securing funds for our major project. Solicitation of funds for the planetarium was begun in April, 1947, and by the end of the year there had been received in cash and pledges approximately \$286,500 in addition to the original \$200,000 conditionally pledged by the Morrison Estate.

We have also received a contribution, in excess of \$80,000, from the estate of the late Laura Lyon White. This is for the construction of a hall in memory of her husband, the late Lovell T. White, to be located adjacent to and in the same building as the planetarium.

This hall is to be known as the "Lovell White Memorial Hall of Man and Nature." The exhibits in this hall will be planned to stress the desirability of conservation of natural resources, a subject close to the hearts of all our members and one which the Academy has always made one of its principal objectives.

In view of these contributions and pledges, I think it is accurate to say that the building fund of the Academy has so far been enriched by approximately \$570,000 either directly or indirectly because of the planetarium undertaking and, of course, contributions are still being sought and received.

As a result of this financial picture our Board of Trustees is now prepared to proceed actively with work looking to actual construction as soon as final plans are prepared, and the Board has appropriated funds for such preliminary work. Of course, the most difficult part of constructing a planetarium is to secure or build the projector, and it will be on this problem that a major part of the preliminary work will be done.

What I have said above refers to the planetarium and the Lovell White Memorial Hall. The other proposed additions to plant will go forward at the same time; *i.e.*, the Morrison Auditorium and the addition to the Simson African Hall. Funds for these structures have been in hand for some time previous to 1947. The African Hall addition will add approximately 7,000 square feet of museum space to be devoted chiefly to African fauna. The auditorium will fill a long-felt want by providing an adequate and comfortable lecture hall, equipped with modern motion picture and sound apparatus. Moreover, the completion of these units will also afford much-needed basement room for laboratories, storage, and workshops, as well as space for suitable rooms for our expanding Junior Science Group.

A highlight of accomplishment during the year was the planning and preparation for the publication of our new magazine, *Pacific Discovery*, the

first number of which was issued soon after the first of the present year. With the launching of this bi-monthly magazine the Academy is taking a big step forward. A magazine of this sort is called for to round out the activity of a modern institution engaged in research and museum activities. We hope, in time, to make this venture self-supporting, and the assistance of our members and friends is solicited in securing additional subscribers to this end.

As will be seen from the picture on the front cover, a rather striking change in the appearance of the Academy buildings took place during the past year. Our members and other visitors will remember that both the Simson African Hall and the North American Hall were almost completely obscured by trees and shrubs on their north side, which is the side from which they are normally approached. With the removal of this sylvan screen, for which we are indebted to the cooperation of the San Francisco Park Commissioners and Mr. Julius Girod, superintendent of Golden Gate Park, these halls are now revealed as the handsome structures which they are.

MEMBERSHIP: As of December 31, 1947, the Academy had 1,005 members of all classes, showing a decrease of 56 during the year. This loss is chiefly due to a drop of 77 in student memberships, the other classes having increased slightly or about held their own. The decrease in the Student Membership was due to the fact that little or no effort was made during the past year to attract new members because our space for student activities was already badly overcrowded.

Since the beginning of this year, however, there has been a very marked increase in both regular and life memberships, largely due to the publication of *Pacific Discovery*, and, in the case of life members, to donations to the building fund.

As of December 31, 1947, the roster of the Academy's membership was as follows:

Regular members	.	.	.	.	.	.	518
Student members	.	.	.	.	.	.	151
Life members	.	.	.	.	.	.	165
Fellows	.	.	.	.	.	.	99
Honorary members	.	.	.	.	.	.	21
Patrons	.	.	.	.	.	.	33
Benefactors	.	.	.	.	.	.	1
Corresponding members	.	.	.	.	.	.	10
Associate or Institutional members	.	.	.	.	.	.	7
							1,005

During the year eleven life members were elected under the provision which automatically bestows life membership on members of twenty-five years' standing, or because of substantial gifts. In addition, two persons were elected life members in recognition of the value of their services to the Academy, namely, Mr. L. Dwight Ripley, the well-known botanist of Wapugee Falls, N. Y., and Colonel John R. White of the National Park Service.

Eight Fellows were elected, as follows: Dr. Rolf L. Bolin, Associate Professor of Oceanography, Hopkins Marine Station, Stanford University, Pacific Grove; Dr. W. M. Chapman, Director, School of Fisheries, University of Washington; Dr. Francis N. Clark, Senior Aquatic Biologist, State Fisheries Laboratory, Terminal Island; Dr. Richard M. Eakin, Associate Professor of Zoology, University of California, Berkeley; Dr. John L. Kask, Chief Biologist, Fisheries Division, Food and Agricultural Organization of the United Nations; Dr. Walter S. Mulford, Emeritus Dean, School of Forestry, University of California, Berkeley; Dr. Siemon W. Muller, Professor of Geology, Stanford University; Dr. Ira L. Wiggins, Director, Natural History Museum, Stanford University.

Nine persons were designated Patrons in recognition of important gifts to the Academy, as follows: Mr. K. K. Bechtel, Mrs. K. K. Bechtel, Mr. W. P. F. Brawner, Mrs. William Durham, Mrs. D. E. Koshland, Mrs. Marcus S. Koshland, Mr. Hugh B. Leech, and Mr. F. Somers Peterson.

Four Honorary Members were elected, as follows: Charles A. Kofoid, Emeritus Professor of Zoology, University of California, Berkeley; Albert W. Herre, Curator of Ichthyology, Natural History Museum, Stanford University; Robert Cushman Murphy, Curator of Birds, American Museum of Natural History, New York; Bjorn Helland-Hansen, Director, Geophysical Institute, Bergen, Norway.

It is with regret that I have to report the loss of thirteen members by death during 1947, including one Honorary Member, Professor Charles A. Kofoid of the University of California; two Fellows, Dr. S. F. Light and Dr. T. D. Beckwith, both of the University of California, and Mrs. Rosa S. Eigenman, who, at the time of her death, had been a member of the Academy for sixty-four years.

PUBLICATIONS: During the year the Academy issued only one publication in its scientific series. This marks a low point in this field. However, we can definitely look for an upswing, eleven papers, totaling several hundred pages, now being in page proof form, to be issued very shortly. These papers represent work done over the past several years.

FINANCIAL: A statement, with comment, of the Academy's financial position as of June 30, 1947, and of operating income and expense during the year ending on that date will be found in the Treasurer's report following the Directors' report. It is a pleasure to observe that in the face of rising cost and continuing inflation, we ended the fiscal year on June 30, 1947, showing annual operating income some \$21,000 in excess of annual operating expenditures and were able to transfer that amount to surplus. In addition, we paid off the last \$10,000 of debt, and the Academy is now debt free.

In spite of this favorable showing for the past year we must not lose sight of the fact that the Academy, owing to inflation and the continuing decline in the purchasing power of the dollar, is not, on the whole, in a favorable financial position. The great bulk of our income is fixed in dollars, being derived from endowment investments at fixed rates, whereas the cost of living, that is, the cost of carrying on our business, is constantly increasing. Unless increased operating income is secured in the near future, or the present inflationary trend is reversed, sooner or later we shall have to curtail our activities.

The President is required by the Constitution to report at this time on the "Progress, Condition and Needs of the Academy." I have tried to give a brief report above on our progress and condition. As to our needs, they are almost unlimited, and, of course, most of them require almost unlimited money. Although our building program is now in a financial stage that justifies the start of work looking toward construction, we still need substantially more money to accomplish what we are aiming at. However, three of our most pressing needs are in a fair way to be satisfied. I refer to a modern auditorium, more working space, and adequate rooms for the Junior Science Group. Equally important to our future are modern library rooms with adequate stacks, for which we have no funds to date. The Academy possesses a rare scientific library of upwards of 100,000 volumes and has no proper place to house it. Also badly needed is a hall for geological and mineralogical exhibits and for changing or temporary exhibits, for which we likewise have no funds.

Another need, not directly dependent on money, is a larger and more active membership. It is a disappointment to see our membership decline, even temporarily.

To sum up: As for progress, I think it has been quite satisfactory during the past year. As for condition, I think we are sound. As for needs, they are very great and, no doubt, we shall always have them with us. We can only keep striving to satisfy them in the hope that the Lord, through kind friends, will continue to provide.

M. E. L.

REPORT OF THE DIRECTOR

FOR THE YEAR ENDING DECEMBER 31, 1947

The preparation of an annual report is an occasion not only for writing but for reflection. One is perforce brought face to face with his sins of commission and omission through a year gone down the corridor of time, and he finds himself confronting also the larger issues of his way of life, and contemplating what permanent values—if any—have derived or are likely to derive from the undertakings in which he is engaged.

It is worth our while to consider the opinions of the value of museum work held by persons outside of the museum field. In this connection I should like to refer to a paper on "Museums and Education" by Salvador de Madariaga, which was published in *The Museums Journal* not long ago. Says Senor de Madariaga in part:

" . . . in the matter of museums I am a mere member of the public, and as such I entertain strong views about the importance—the really paramount importance—of museums for education, and particularly at the present day more than ever. You will forgive me for saying that in spite of the victory in the battlefield I am not exhilarated with optimism about the future of the world, and the reason for this is that I feel, as many of you, that we are, if not at the beginning of an era, threatened by the possibility of an era dominated by mass and matter instead of by spirit and quality. . . . In this fight, for it is going to be a fight, . . . the museums have a tremendous share to take, bigger than the schools, and for this reason: that, as I see it, the schools stand for *instruction* and the museums stand for *education*, and it is not the same thing. . . . In the museums we can gather the contrast between quantity and quality, and the importance of quality as against quantity.

"The second point is complexity versus simplicity. . . . Things must be clear . . . but they are not simple. The respect for the complexity of things must be kept going . . . not by arguing with people, because they will argue back . . . but by telling them why, by merely showing them why, and letting them think it over, and realize the complexity of things."

Thus Senor de Madariaga. It affords no small degree of inspiration to persons working in the museum field to learn that an outsider looking in—the outsider in this case a distinguished scholar and man of letters—finds in museums a real civilizing force, a force for education in the broadest sense. It is important that museum staffs, museum administrators, boards of trustees, and persons in a position to contribute financially or otherwise to a museum program, be deeply aware both of the opportunity that is theirs and of the responsibility involved.

ATTENDANCE

That the Academy's museum program is reaching a large and rapidly increasing public is shown by the attendance statistics. During 1947 the number of visitors at the Aquarium and in the two museum buildings also was gratifyingly greater than during the previous year. The figures are as follows:

	1946	1947
North American Hall . .	279,398	437,777
Simson African Hall . .	292,228	378,852
Steinhart Aquarium . .	718,775	960,324
Total of all buildings . .	1,290,401	1,776,953

This represents an overall increase of more than 37 per cent.

The Aquarium was visited during the year by 253 classes or special groups, including 9,778 persons, mostly students from public and private schools, colleges and universities within a radius of 100 miles of San Francisco. The Museum (figures for North American Hall and African Hall combined) was visited by 304 classes or organized groups, including 10,733 persons. The student attendance is included in the total attendance given above.

MUSEUM EXHIBITS

After considerable experiment to insure that a satisfactory effect could be obtained, fluorescent lighting was installed in the Simson African Hall, replacing the earlier incandescent lighting of the dioramas in all except a limited number of cases in which, to obtain some particular effect (*e.g.*, a sunset glow) either incandescent lighting or a mixture of the two kinds of light seemed to be in order. The result has been to provide an interesting variety of lighting in different dioramas, and to obtain better illumination with some saving of electricity.

In the North American Hall, improvements have been made in the already outstanding William B. Pitts Collection of Semi-precious Stones, with the addition of new specimens and extensive changes in the opal and crystal displays. The W. B. Stephens Horological Exhibit has been considerably extended, and numerous explanatory labels and diagrams installed under Dr. Stephens' direction. Additions have been made to the Mailliard Collection of Birds of the San Francisco Bay Region, and several new models have been completed for the exhibit of Edible and Poisonous Fungi.

Three special exhibits have been held during the year: water-color paintings of California wildflowers by Mrs. William E. Dennison; water-color paintings of Ecuadorian wildflowers by Miss Catherina Maria Barnas; wildlife photographs by Mr. Melvin Johanson.

PUBLIC LECTURES

The following public lectures were given under the auspices of the Academy in 1947, the ones marked with an asterisk being lectures on the Dr. Walter B. Scaife Foundation:

JANUARY	28	Mr. Howard Cleaves, National Audubon Society: MIDNIGHT MOVIES IN ANIMAL LAND*
MARCH	25	Mr. Allan D. Cruickshank, National Audubon Society: SOUTH ALONG THE SUWANEE*
APRIL	24	Mr. Karl Maslowski, National Audubon Society: FROM SEASHORE TO GLACIER*
MAY	21	Dr. Earle G. Linsley, Director of the Chabot Observatory: THE PLANETARIUM, A THEATER OF THE STARS (Joint meeting with the Astronomical Society of the Pacific)
JULY	16	Dr. Edward S. Ross, California Academy of Sciences: MOTORING TO ACAPULCO
AUGUST	20	Mr. Paul Bonnot, California State Division of Fish and Game: SEA LIONS OF THE CALIFORNIA COAST
SEPTEMBER	24	Dr. Wilbert M. Chapman, California Academy of Sciences: A ROVING CURATOR IN POST-WAR EUROPE
OCTOBER	27	Mr. Alexander Sprunt, Jr., National Audubon Society: OUR LIVING EARTH*
NOVEMBER	25	Mrs. T. Eric Reynolds, National Audubon Society: SOUTHERN EXPOSURES*
DECEMBER	17	Mr. and Mrs. Francis P. Farquhar, California Academy of Sciences: GRAND CANYON FROM THE BOTTOM

STUDENT SECTION

The activities of the Student Section, under the direction of Miss Joanne Taylor and Mrs. R. E. Fink, have progressed in a very satisfactory way. Upwards of 200 different students have participated in the activities of this section, including field trips, lectures, and meetings in which the students themselves participate in the program.

Meetings of the Senior Section, held on alternate Tuesday evenings, opened last fall at their request with a course on invertebrates. By using study sheets and microscopes, brought by the students, the combination of lecture and workshop has proved very successful.

The room devoted to student activities was renovated during the year, and now makes a very attractive meeting place. Larger and better arranged quarters are, however, greatly needed and are being planned for in our new building program.



Young naturalists at work in the Junior Club Room

STAFF CHANGES

As of July 1, Dr. Edward S. Ross was promoted from Associate Curator to Curator of the Department of Entomology. As of the same date, Mr. Hugh B. Leech, formerly with the Dominion Entomological Laboratory, Vernon, B. C., was appointed Assistant Curator of the Academy's Department of Entomology. After certain unavoidable delays, he began work at the Academy on September 1.

On July 16, Mr. Don Greame Kelley joined the Academy's staff as editor of periodical publications, including the *Academy News Letter* and the new magazine, *Pacific Discovery*.

On October 4, Dr. W. M. Chapman, Curator of the Department of Ichthyology since 1942, resigned to accept appointment as Professor of Fisheries and Director of the School of Fisheries at the University of Washington, Seattle.

During the five years of his curatorship here, Dr. Chapman built our Department of Ichthyology to new levels of scientific importance and international recognition. While keenly regretting his departure, the officers and staff of the Academy join in wishing Dr. Chapman the highest degree of success in the distinguished position to which he has been appointed.

At the October meeting of the Council, Dr. W. I. Follett, Recording Secretary of the Academy, was appointed Acting Curator of the Department of Ichthyology.

The Council, at its October meeting, also appointed Dr. Earle G. Linsley, Emeritus Professor of Astronomy in Mills College, and Emeritus Director of the Chabot Observatory, to the post of Research Associate in Astronomy in the California Academy of Sciences. Through long experience as both astronomer and educator, Dr. Linsley is particularly qualified to assist in planning the Alexander F. Morrison Planetarium, one of the major items in the Academy's projected million dollar addition to its present plant.

On April 1, 1947, Mr. Patrick McArdle retired after twenty years of service as janitor in the Steinhart Aquarium. He established a record seldom equalled for steady dependability, and became well known as the man who opened the aquarium doors in the morning to admit the visitors of the day and who had the less pleasurable but equally necessary duty of persuading a reluctant public to leave at five o'clock so he could close the doors again. Mr. McArdle's many friends hope that he will be a frequent visitor at the scene of his former labors.



Dr. Ross collects a new species of Embioptera near Chilpancingo, Mexico

FIELD WORK

In 1947, field work was resumed on a scale commensurate with that before the war. On May 28, Dr. G. Dallas Hanna, Curator of the Academy's Department of Paleontology, departed by airplane for southeastern Alaska where he spent two months in scientific collecting and reconnaissance, particularly on Dall Island and Annette Island, on the north side of Dixon Entrance.

Dr. Robert T. Orr, Curator of Birds and Mammals, made several trips to San Luis Obispo and Kern counties, particularly to collect bats, and spent two weeks in the Tahoe region continuing his studies of the birds and mammals of that area.

At the beginning of August, Mr. Joseph R. Slevin, Curator of the Department of Herpetology, left for a six months' collecting trip in Australia, where he still is at the date of this writing. Traveling by plane, he was able to save several weeks of travel time, thus increasing the time available for collecting.

In this connection, it is interesting to recall Mr. Slevin's first expedition south of the Equator, the Academy's Galapagos Expedition in 1905-06, made on a sailing ship without auxiliary power, and lasting nineteen months. As if the contrast in mode of transportation were not of itself sufficiently dramatic, by a happy coincidence, on his present journey Mr. Slevin crossed paths in Fiji and had breakfast at the airport with Professor E. W. Gifford of the University of California, who had been a companion on that Galapagos voyage forty-two years before.

On September 15, Mr. Cecil Tose, Chief Preparator of the Department of Exhibits, left for western Alberta with Mr. William Foster of Rio Vista, sponsor of the expedition, to collect a bull and cow moose for a new group in the Academy's Museum. They returned in November with the desired specimens, and also some excellent movies and kodachrome slides of moose, elk, mountain sheep and mountain goats.

Mr. J. T. Howell, Assistant Curator of the Department of Botany, made two extensive trips and several shorter ones, collecting plants in the San Bernardino and San Gabriel Mountains, and in Inyo, Sonoma and Marin counties.

Dr. W. M. Chapman, Curator of the Department of Ichthyology, spent the period from May to September visiting museums in the eastern United States and in western Europe, working on a monograph of the family Blennidae. He was awarded a Guggenheim Fellowship for this purpose.

Dr. W. I. Follett, Acting Curator of the Department of Ichthyology following Dr. Chapman's resignation, made fifteen trips of longer or shorter duration, collecting in various parts of California, and adding some 2,000 fishes to the Academy's collection.

ACCESSIONS

During 1947, the Department of Botany accessioned 1,166 herbarium specimens collected by the Assistant Curator, Mr. J. T. Howell; 4,103 specimens received by exchange; and 6,467 specimens received as gifts from the following collectors: Dr. R. C. Barneby, Mrs. H. P. Bracelin, Mr. and Mrs. H. C. Cantelow (4,680), Dr. G. D. Hanna, Dr. T. H. Kearney, Dr. D. D.

Keck, Mr. H. M. Pollard, Mr. Dwight Ripley, Mr. G. T. Robbins, Mr. Lewis S. Rose. This brings the total number of mounted specimens in the herbarium to 340,000.

In the Department of Entomology, accessions for the year number 52 with a total of 62,506 specimens. The more important of these may be mentioned in alphabetical order as follows: Herbert Blakemore presented several thousand unmounted Lepidoptera and other insects from New Guinea and the Philippines. G. E. Bohart donated 428 insects from Siota Island, Solomons. Dr. G. D. Hanna collected and presented a set of insects from southern Alaska. G. L. Harrington gave approximately 3,000 beetles from Argentina and Bolivia. E. L. Kessel added 734 Diptera through his local collecting. H. B. Leech, in addition to his very important water beetle collection numbering 28,792 specimens, turned over 1,600 miscellaneous insects from British Columbia. Approximately 3,000 additional specimens were mounted and incorporated from the Academy's 1946 Mexican Expedition. The Curator presented 6,474 mosquitoes from southeastern United States and the southwest Pacific area; 2,500 of this number are larvae mounted on slides. The size of this collection will be doubled when the unmounted material is accessioned. In addition, the Curator donated his collection of Histeridae totalling 5,556 specimens.

Dr. Van Dyke purchased and presented very outstanding and nearly complete collections of Australian Buprestidae and Rutellinae. These total 1,336 specimens representing 301 species. A. J. Walz gave 431 specimens from Bougainville, Solomon Islands, and R. G. Wind added several thousand unmounted insects from the Australasian region.

The Department of Exhibits received a large collection of African trophies from the estate of Stewart Edward White, as well as a number collected by the late George J. Hoffman and presented by Mrs. Hoffman.

Important collections of fishes, fully identified and accompanied by exemplary data, were contributed to the Department of Ichthyology by Dr. Carl L. Hubbs. Other contributors to the departmental collections included Lewis H. Atkinson, Robert P. Dempster, Willis A. Evans, W. I. Follett, G. Dallas Hanna, Robert R. Harry, Jr., Robert R. Perkins, Maurice Rakowicz, Donald A. Simpson, Willbur-Ellis Company, and Otis R. Wright.

The Library maintained its normal annual growth of about 10,000 items, and in addition received 16,882 Army maps. The California Division of Mines deposited 345 volumes, among them the first ten volumes of the "Philosophical Transactions of the Royal Society of London."

Two handsomely bound volumes were contributed by the San Francisco Garden Club, purchased from the Mrs. William Hinckley Taylor Fund, namely, "A Monograph of the Genus *Lilium*," by Elwes, London, 1880, and its Supplement, 1933. With this gift was another beautiful contemporary work, "A Study of the Genus *Paeonia*," by Stearns, London, 1946. Miss Eastwood gave, among many other gifts, "Flora Iaponica," by Thunberg, 1784, the first flora of Japan, written by a student of Linnaeus. Dr. Van Dyke presented a costly work by Palisot de Beauvois, entitled "Insects Recueillis en Afrique et en Amérique". . . Paris, 1805. Dr. J. L. Kask brought back from Japan several beautiful silk-bound monographs, illustrated with Japanese wood-cuts.

Three works of rare beauty were acquired for the Moffitt Memorial Library, namely, "A Monograph of the Bucerotidae, or Family of the Hornbills," by Elliott, London, 1877-1882, with 57 hand-colored plates by Keulemans; "A Monograph of the Turdidae, or Family of Thrushes," by Seebohm, two volumes, London, 1898-1902, with 149 hand-colored plates by Keulemans; and "Naturgeschichte der Vögel Mitteleuropas," by the brothers Naumann, twelve volumes with colored plates by Gera, 1905. Other important titles were: John Ray's "Methodus Plantarum," London, 1703; and Lister's "Historiae sive Synopsis Methodicae Conchyliorum," Oxford, 1770.

The Department of Ornithology and Mammalogy accessioned 489 specimens during the year. Twenty-four species and subspecies of mammals and 16 species and subspecies of birds not heretofore represented in the collection were among them. The following accessions call for special mention: 50 bird and mammal skins from Texas and North Dakota, presented by Dr. J. Dan Webster; 8 skins of big game and fur-bearing mammals from Korea, received from Mr. Anatole H. Loukashkin; a series of 150 dowitchers from the San Joaquin Valley, presented by Mr. Rollo H. Beck; a collection of small mammals from Dall and Kosciusko islands, Alaska, by Dr. G. Dallas Hanna. Mr. Claude Hooke of Napa and Mr. Alex H. Isenberg of Palo Alto both presented the department with a number of exotic birds that had died in their aviaries. An exchange with the Coryndon Museum in Nairobi, East Africa, resulted in the acquisition of a number of valuable skins of African birds.

The Department of Paleontology received a number of collections, principally of recent and fossil mollusks. The largest was that obtained by the Curator, Dr. G. Dallas Hanna, in southeastern Alaska during June and July. Several other collections were received during the year. These include a collection of recent and fossil mollusks from Mrs. W. J. Raymond. The

types of several species included in this material have been added to the type collection. A collection of marine shells from Japan was received through the offices of Dr. John L. Kask. A series of abalone shells, as well as specimens representing several other genera, were received through an exchange with Dr. Takashi Ino of the Biological Station at Kominato, Japan. A small collection of tertiary fossils was received in an exchange with Dr. Kotoro M. Hatai of Tohoku University, Sendai, Japan. Recent shells from various localities in Lower California, California and Alaska were received from Mr. Woodbridge Williams of La Jolla, California. A collection of marine shells, chiefly from off the New England coast, received by Mr. Allyn Smith from the Museum of Comparative Zoology, were presented to the Academy by Mr. Smith. Other collections received during the year include the following: fossil mollusks from geologists of the Tide Water Associated Oil Company; marine shells from the Gulf of California from John Strohbeen; several fossil teeth from the Miocene of the Santa Cruz mountains, collected by Mr. and Mrs. Aston Stridell, were presented to the Academy by Mr. Charles Townsend.

SHOP ACTIVITIES

Last but not least, mention should be made of the Academy's well-equipped shops, which are maintained primarily for the construction and repair of instruments and equipment used by the various departments. Individual jobs performed have amounted to many hundreds, and have ranged from cleaning and overhaul of typewriters and microscopes to repair of elevators.

Outside work by the shops has been confined to such services to other scientific or educational institutions as they were not able to obtain elsewhere. This has consisted to a large extent of the coating of optical surfaces in high vacuum and the making of special optical parts for which the Academy has become especially well fitted. Some biological equipment, not elsewhere obtainable, has been made. This has consisted largely of special limnological apparatus.

The institutions which have thus been assisted are: University of California, Stanford University, California State Division of Fish and Game, Ames Laboratories (Moffett Field), Tinsley Laboratories, Bausch and Lomb Optical Company, American Optical Company, and Redman Scientific Company.

Much needed new equipment for several departments was constructed during the year, including 62 entomology equipment cases, complete with 1500 drawers. The next project in this category, the making of 60 cases for Ornithology and Mammology, is now under way.



Opticoating lenses in high vacuum in the Academy's instrument shop

SCIENTIFIC MEETINGS

Attendance at and participation in scientific meetings is an important function of the Academy's staff.

Dr. W. M. Chapman presented a paper on the Pacific tuna fishery at the 12th National Wildlife Conference held at San Antonio, Texas, February 3-5, 1947.

Drs. Chapman, Kask and Miller attended the annual meeting of Pacific Fisheries Biologists held at Harrison Hot Springs, British Columbia, April 10-12, 1947.

Drs. Follett, Kask and Miller attended the meetings of the Pacific Division, A.A.A.S., in San Diego, June 16-21. Dr. Kask was a principal speaker on the Divisional Symposium. He was also elected Secretary-Treasurer of the Oceanographic Society of the Pacific. Dr. Follett was elected president of the Western Division, American Society of Ichthyologists and Herpetologists. Dr. Miller was reelected Secretary-Treasurer of the Pacific Division, A.A.A.S.

In the latter part of August, Dr. Robert T. Orr attended the annual meeting of the American Society of Mammalogists at Higgins Lake, Michigan. He was elected Recording Secretary of this organization.

Drs. Kask and Miller attended several meetings of the Technical Advisory Committee on Sardine Investigations.

R. C. M.

REPORT OF THE TREASURER

FOR THE FISCAL YEAR ENDED JUNE 30, 1947

The funds of the Academy and their respective assets as at June 30, 1947, are shown in the accompanying balance sheet, Exhibit A. There was at that date an unexpended balance in the General Operating Fund of over \$140,500, an increase of approximately \$21,000 over the balance as at June 30, 1946. This increase was due to excess of income over expenditure, summarized as follows in round figures:

INCOME

Net rental from Commercial Building	\$129,700	
Dues	2,400	
Profit from sales at Museum	5,500	
Miscellaneous	1,000	
		\$138,600

EXPENDITURE

Museum and departmental operations	\$ 98,900	
Additions to Museum equipment and Library	5,400	
Trustees' expenses	5,500	
Building Fund campaign	7,500	
Interest paid	300	117,600
EXCESS OF INCOME		<u>\$ 21,000</u>

Additions to funds for new construction are summarized as follows:

FUNDS

	Balance June 30, 1946	Additions	Balance June 30, 1947
Leslie Simson	\$275,720	\$ (350)	\$275,370
James F. Morrison Auditorium	176,690	620	177,310
James Moffitt Memorial	27,580	220	27,800
Alice Eastwood Botanical	12,290	200	12,490
Ida May Carmany Terrarium	5,090	30	5,120
Memorial Fountain	1,200	...	1,200
Planetarium	...	57,520	57,520
Total	<u>\$498,570</u>	<u>\$58,240</u>	<u>\$556,810</u>

The indebtedness of the Academy incurred for the purpose of construction of the Simson African Hall in advance of the receipt of funds from Leslie Simson and his estate has now been completely liquidated. Final payment of \$10,000 was made during the year.

Donations for the construction of a Planetarium were received during the year in the amount of over \$57,000, but inasmuch as the campaign for this purpose had barely begun at the close of the fiscal year, further comment is reserved until the report for the ensuing year, when more adequate acknowledgment will be made.

FRANCIS P. FARQUHAR, *Treasurer*

CALIFORNIA ACADEMY OF SCIENCES

BALANCE SHEET AS AT JUNE 30, 1947

ASSETS AND LIABILITIES

GENERAL OPERATING FUND

Cash on hand and in banks	\$107,653.71	
Accounts receivable	262.99	
Inventory of merchandise for sale	5,754.64	
Stocks of corporations	91.29	
Expenses of lease, to be recovered from income	26,812.00	
Total		\$ 140,574.63

SPECIAL FUNDS

Cash in banks	\$ 14,791.74	
Securities	14,000.00	
Total		\$ 28,791.74

NEW CONSTRUCTION FUNDS

Cash in banks	\$163,689.37	
Securities	393,120.70	
Note receivable	1.00	
Total		\$ 556,811.07

ENDOWMENT FUNDS

Cash in bank	\$ 14,436.93	
Real estate—Commercial Building	835,152.58	
Real estate—Jessie Street	8,083.65	
Total		\$ 857,673.16

IGNATZ STEINHART TRUST

Cash in banks	\$ 6,970.43	
Due from City and County of San Francisco	2,444.06	
Aquarium—building and contents	301,231.25	
Total		\$ 310,645.74

MUSEUM FUND

North American Hall and Simson African Hall	\$262,504.04	
Architects' plans	4,329.52	
Furniture and equipment	21,379.65	
Collections	296,123.14	
Library and publications	225,705.77	
James Moffitt Library	2,000.00	
Total		\$ 812,042.12
		<u>\$2,706,538.46</u>

BALANCE SHEET (Continued)

FUND BALANCES

GENERAL OPERATING FUND

Unexpended income and gifts, available for current operations and such other purposes as may be authorized

Total \$ 140,574.63

SPECIAL FUNDS

W. B. Scaife Lecture Fund \$ 10,100.84
 Alvord Botanical Fund 5,363.16
 J. D. Grant Fund 10,433.49
 Miscellaneous Funds 2,894.25

Total \$ 28,791.74

NEW CONSTRUCTION FUNDS

Leslie Simson Fund \$275,370.00
 James F. Morrison Auditorium Fund 177,308.75
 James Moffitt Memorial Fund 27,797.17
 Alice Eastwood Botanical Fund 12,494.00
 Ida May Carmany Terrarium Fund 5,119.80
 Memorial Fountain Fund 1,201.50
 Planetarium Building Fund 57,519.85

Total \$ 556,811.07

ENDOWMENT FUNDS

James Lick Endowment \$804,902.31
 Charles Crocker Endowment 20,000.00
 James W. Hendrie Endowment 32,770.85

Total \$ 857,673.16

IGNATZ STEINHART TRUST

Principal \$250,000.00
 Income added 60,645.74

Total \$ 310,645.74

MUSEUM FUND

Gifts, bequests, and appropriations from income received during a period of many years, less depreciation and abandonments

Total \$ 812,042.12

\$2,706,538.46

CALIFORNIA ACADEMY OF SCIENCES

MUSEUM AND AQUARIUM PERSONNEL*

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* April, 1948

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FRANCES GREEBY, *Assistant in Optics*

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